

Specifications for V-Box Material Spreader, 15 FT (ITEM ID to be determined)

1. General Description:

- a. This specification shall describe a v-box material spreader capable of hauling and spreading free flowing granular materials from a width of four (4) to forty (40) feet.
- b. This unit will consist of a hopper, Dual Auger discharge/feed, spinner disc, power drive, and all components necessary to make a complete operating unit.
- c. All bidders shall provide a complete proposal drawing accurately showing the exact model to be provided including all options, and units, loaded and unloaded weights and centers of gravity. These drawings shall be provided as part of the bid package. Failure to attach these drawings with the completed bid form will be grounds for disqualification of the entire bid package.
- d. This unit shall be factory ready to accept or retrofit servo controls.
- e. All stainless steel used in the production of this unit shall be corrosion resistant, non-magnetic stainless steel.
- f. The manufacturing and production of this unit shall be of the best commercial practices and only materials of the finest quality are to be used.
- g. Bidders must submit with their bid complete specifications on the unit they propose to furnish.
- h. Hopper body sides shall be constructed of 304 Grade, 10 GA. minimum non-magnetic stainless steel. Hopper sides shall be formed of one solid piece. **NO WELDED SEAMS OR SPLICES ON THE SIDE SHEET ARE PERMITTED.**

2. Body:

- a. Construction – 10 Ga. 304 minimum non-magnetic stainless steel with a double crimped top edge forming a 2" section for greater rigidity.
- b. Hopper body Length – 15' with 2' of longitudinal overhang for unloading material to the spinner assembly.
- c. Outside Width – 82" maximum
- d. Side Height – 54" maximum
- e. Capacity – Approximately 8.3 cubic yards water level full
- f. Body sides – 10 ga. 304 Stainless steel with no less than 45 degree pitch to ensure free flow of material to the auger trough. Sides are to be constructed using a single sheet of 304 stainless steel NO SPLICES
- g. Body ends – 10 ga. 304 stainless steel. Front sheet shall be sloped so as not to interfere with an internally mounted telescopic hoist incorporating a cylinder dog house, if required.
- h. Body longitudinal – Shall be manufactured of 10 ga. Non-magnetic stainless steel.
- i. Inside weld – Spreader body shall be 100% welded on the inside.
- j. Channel cross sills – Shall be 7 ga. Non-magnetic stainless steel that tie the lower edge of the longitudinal to each side support.
- k. Cross supports – Shall be wide enough to allow the hopper box to be mounted on various width truck frames or slide into a dump box.
- l. Top – A 4" X 6" formed non-magnetic stainless steel bolt in box beam shall be elevated 3" above the top edge of the hopper, thus providing a longitudinal brace and hinge point for the top screens.
- m. Channel – There shall be a 3" formed non-magnetic stainless channel welded under the H-beam to each hopper side for additional side support.

- n. Body welding – body and auger channel shall be electrically welded into a rugged solid unit
- o. Side supports – There shall be 12 ga minimum formed non-magnetic stainless steel side supports that extend the full angle height spaced on 2' centers.
- p. Lift Hook – A heavy duty non-magnetic stainless steel lift hook shall be provided at each corner.
- q. Mounting kit – Mounting kit is to include;
 - i. 4 ea. 4" nylon load straps which will attach to the pockets welded to the spreader hopper. These straps will be secured to the truck body with 4" capacity, cargo winches (which are to be welded to the dump body).
 - ii. 1 ea. 3" X 3" X 3/8" structural steel angle to run between the left and right side tailgate latch. The latch bar is to have a 1-1/4" round pin stock welded to the latch bar angle, and positioned to allow the dump body tailgate locks to latch over the pins in order to hold the spreader securely into the dump body.
 - iii. All stainless steel joints shall be welded with stainless steel welding wire.
 - iv. All sub-assemblies shall be secured with stainless steel hardware
 - v. A mounting kit shall be provided to safely secure the hopper to the truck.

3. Auger System:

- a. The dual auger system shall be twin augers 7" in diameter running longitudinally with the body, feeding material the full length of the hopper.
- b. The augers shall consist of a 4" O.D. steel pipe with a 2" steel end shaft and steel fitting continuously welded the full length.
- c. The fluting shall be 1/2" thick steel. The fluting shall have (3) different pitches so the hopper will unload evenly from the front, middle and rear. Outer edge of fluting shall include welded steel hardened matrix.
- d. The augers shall be driven by dual 14 H.P. hydraulic motors. The motors will drive dual gear boxes providing a 3.6 – 1.0 ratio and shall be directly coupled by a spline shaft coupling to the augers or shall be dual hydraulic motors direct coupled to the auger shaft. The hydraulic motors shall have sufficient power to maintain constant spread rate of dry or wet materials.
- e. The coupling shall be equipped with grease fitting so that the motor spline and coupling can be lubricated.
- f. The idler end of the auger shall be supported by a 4 bolt flange, heavy duty, dust sealed, self-aligning ball bearing.
- g. This bearing shall be able to be lubricated from the rear of the body.
- h. Both the auger drive and idler end plate shall be manufactured from 3/16" Stainless steel.
- i. A height adjustable stainless steel inverted vee shall be provided to keep material load off the auger for easier auger start-up.
- j. A protective stainless steel grate shall be placed over the exposed auger outside the hopper.

- k. A closed loop auger sensor is to be installed on the passenger side auger shaft at the front of the spreader. Wiring for the sensor is to be run to the rear of the spreader. This pulse sensing line must be capable of being connected to the chassis mounted pulse sense wiring in order to provide closed loop operation.
- l. The spreader shall be equipped with a safety interlock device to positively prevent power from reaching the auger motor when the auger cover and top screens are opened beyond the normal operation position.
- m. The auger floor shall be manufactured of $\frac{3}{4}$ " UHMW polyurethane. It shall be of a curved design and shall be replaceable. The floor shall be supported on 12 gauge stainless steel cross angles spaced approximately 12" apart.

4. Spinner Assembly:

- a. Distributer disc – 22" diameter, made of polyurethane
- b. Mounting – Disc shall be mounted on a steel replaceable hub connected directly to the hydraulic drive motor.
- c. Material shall be guided from the Auger trough to the distribution disc by means of a 10 Ga. polyurethane tapered chute which is attached to the discharge opening of the spreader by means of a single stainless steel pin. The chute must be adjustable to direct salt flow to front, center and rear of the spinner in order to direct salt to the left or right of spinner center without using any tools
- d. Spinner frame shall be manufactured of 12 ga stainless steel and shall include a one piece tapered deflector system.
- e. Spinner shall be mounted independently from the V box. The spinner will be installed into the 4" receiver tube hitch assembly supplied with the dump truck, to allow for cleaning, storage and unloading from the conveyor without the interference from the spinner assembly.
- f. Spinner shall be capable of being stored on material spreader when not in use and shall not interfere with the loading or unloading of spreader.

5. Top Screens:

- a. Top screens shall be constructed of $\frac{3}{8}$ " steel rods welded to form a 2.5" square mesh, which is framed by a combination of $\frac{1}{4}$ " X 1-1/2" flat steel and 2" angle iron with the edge supports reinforced by $\frac{1}{2}$ " X 1" flat bars.
- b. Top screens shall be removable and use drop-n-loc type hinge.
- c. Screens utilizing hardware that may vibrate loose are not acceptable.
- d. Screens are to be hot dipped galvanized. PAINTED SCREENS ARE NOT ACCEPTABLE.

6. Painting

– All stainless steel shall be left unpainted. Carbon steel components shall be chemically cleaned or sand/media blasted and coated with a lead free rust inhibitive primer and painted with lead free black enamel.

7. Liquid Chemical Storage:

- a. Two side mounted 225 gallon polyethylene reservoir tanks, one tank shall be provided to allow a total of 450 gallons of liquid capacity.
- b. A 3" top fill port with splash proof vent and a 2" suction port are to be provided in each tank.
- c. A plumbing/quick fill kit is to be included consisting of:
 - i. Shut-off valves at each tank end
 - ii. Banjo coupler and all necessary fittings to plumb the tanks together
 - iii. Provisions to fill one tank only or both tanks at the same time.
 - iv. Quick drain valve is to be plumbed into the system on the passenger side of the vehicle.

8. Conspicuity

Spreader shall be outfitted with DOT-C2 11"red/7"white or 6"red/6"white parabolic retro-reflective conspicuity tape (Reflexite, 3M or equal) as per TDOT guidelines. Layout pattern shall be provided to the successful bidder.

9. Ladder

Stainless steel folding ladder is to be provided and installed on the curb side rear of the spreader hopper. The ladder is to be constructed using 100% non-magnetic stainless steel material including stainless steel grip punched ladder rungs, vertical bracing and grab handle tubes on each side of the ladder treads and all hardware. The ladder shall provide a "three" point access to the top screens for cleaning

10. Leg Stand Frame:

Leg stand frame and legs shall be hot dipped galvanized **OR** stainless steel. Leg stand shall be constructed using 3" X 3" X 3/16" tubing which form four long-members running the length of the stand that support the V box. The front of the stand assembly includes two folding and self-storing 3" X 3" tubular legs which will support the empty weight of the spreader when it has been removed from the dump body. Front legs are to have a minimum of three grease zerks to lubricate the inner tube on which the leg assembly rotates.

The stand shall be equipped with holes spaced on 24" centers for mounting to v-box spreader.

Entire leg-stand frame shall be welded solid where possible.

• Legs:

Rear spreader legs are constructed using 3 1/2" X 3 1/2" X 1/4" tubing. **The legs must be capable of lifting above the height of at least 35" above the ground level so as not to interfere with trailer connections and operation.**

Front legs shall be designed to lock at an angle of 90 degrees down in relation to the frame rails for storage, and shall also be designed to swing up, nest between frame rails, and lock for installation into the dump body.

Left and right front upper legs shall be connected by a cross tube constructed from formed 7 gauge steel. Front legs to be bolted to the cross tube.

Left and Right front legs shall be equipped with ½" diameter spring loaded pins to lock the legs in the standing and folded positions.

Front upper legs shall be equipped with 5/8" diameter spring-loaded pins to lock lower leg into the desired height.

The spreader stand shall include a guide plate system to assist in loading the spreader into the truck body.

Guide plates are to be constructed using ½" thick stainless steel plates which are tapered to guide the spreader into the correct position inside the body and must be designed to position the spreader in the center of the body and thus protect the liquid tanks from damage if the spreader is not properly positioned when loading the unit has begun.

11. TDOT Salt Spreader Material Deflector System

All V-Box slide-in material spreaders are to be delivered, equipped with the following material deflector system installed on the spreader.

- a. System shall include rubber belting bolted to the upper vertical top rail of the spreader and must be long enough to extend down over the outside of the dump body top rails, to the lower vertical edge of the rail.
- b. Belting must not interfere with the ability to strap the spreader down to the body with load strap, and tensioning winches that are provided under the body top rails.
- c. Belting is to be a minimum of two ply, with a tension rating of 220 LBS.
- d. Weight per square foot is to be a minimum of 0.80 LBS. per square foot.
- e. Belting is to be 0.125" thick including the top and bottom smooth rubber cover material.
- f. Belting is to be bolted to the spreader using 5/16" Stainless steel lock nuts, bolts and flat washers.
- g. Bolts are to be located on 12" centers running the entire length of the spreader hopper.
- h. Spreader is to be equipped with a front deflector shield and be constructed from 10 Ga., 201 non-magnetic stainless steel.
- i. Front deflector is to be welded to the front wall of the spreader body on an angle so as to be self-cleaning, and properly braced to carry the weight of salt that may not fall into the top of the spreader while loading.
- j. Front deflector shield is to extend forward a minimum of 10" in front on the spreader head sheet, and must also be long enough to extend over the dump body cab shield a minimum of three inches.

Acceptable Brands: Viking, Flink, or equal